

66. A force sensing touch location device comprising:

a touch surface;

a bezel enclosing a first portion of the touch surface; and

force transmission means including an enclosing portion enclosing a second portion of the touch surface and at least one thin rigid leg in contact with the bezel and a stiff surface not including the touch surface, said force transmission means having a stiffness greater than that of the bezel, wherein the force transmission means includes a path to transmit force from the bezel to the stiff surface not including the touch surface.

67. A force sensing touch location device comprising:

a touch surface defining a touch plane;

a first rigid member;

a contoured first film coupled to the touch surface and the first rigid member to form a first seal therebetween, the contoured first film being compliant along an axis normal to the touch plane.

68. The force sensing touch location device of claim 67, wherein said contoured first film contacts a second rigid member and wherein said contoured first film is disposed between the second rigid member and the first rigid member to form a second seal between the contoured first film and the second rigid member.

69. The force sensing touch location device of claim 68, wherein the second rigid member contacts said contoured first film over a portion of said first rigid member.

70. The force sensing touch location device of claim 68, wherein the first seal comprises a seal between the touch surface and a surrounding frame.

71. The force sensing touch location device of claim 70, wherein the first rigid member comprises a portion of the frame.

72. The force sensing touch location device of claim 71, wherein the second seal comprises a seal between the frame and a bezel enclosing the touch surface, and wherein the first rigid member receives perpendicular forces from the bezel to establish the second seal, a portion of said bezel overlying a line of junction of said first seal and said frame.

73. The force sensing touch location device of claim 71, wherein the contoured first film includes a bulge between the touch surface and the frame, and wherein the bulge is compliant along the axis normal to the touch plane.

74. The force sensing touch location device of claim 70, wherein the second seal comprises:

a bezel including a slot;

an insert removably engaged in the slot; and

a second film covering at least a portion of the force sensing touch surface.

75. The force sensing touch location device of claim 67, wherein the contoured first film is transparent.

76. The force sensing touch location device of claim 75, wherein the contoured first film comprises a transparent film having a portion overlaying at least part of the touch surface.

77. The force sensing touch location device of claim 76, wherein the transparent film overlays the entire touch surface.

78. The force sensing touch location device of claim 71, wherein a portion of the contoured first film extends from the rigid supporting member to the touch surface, whereby a gap

is formed between the portion of the contoured first film and a portion of the touch surface.

79. The force sensing touch location device of claim 67, wherein a portion of the contoured first film extends from the rigid supporting member to the touch surface in a direction not parallel to the touch plane.

80. The force sensing touch location device of claim 67, wherein the contoured first film and the touch surface comprise a monolithic element.

81. A method for measuring the touch force applied to the touch surface using the force sensor of claim 1, the method comprising a step of:

(A) developing a signal based on the change in capacitance between the first capacitor plate and the second capacitor plate.

82. The method of claim 81, wherein the amplitude of the signal is a monotonic function of the change in capacitance between the first capacitor plate and the second capacitor plate.

83. The method of claim 81, further comprising a step of:

(B) measuring a property of the touch force based on the signal.

84. The method of claim 83, wherein the step (B) comprises a step of measuring the amplitude of a component of the touch force that is perpendicular to the touch surface.

85. The method of claim 83, wherein the step (B) comprises a step of measuring a location on the touch surface at which the touch force is applied.

86. In a force sensor, a method for separating a first capacitor plate from a second capacitor plate by a desired volume, the method comprising steps of:

(A) disposing a separator between a support surface and a principal element including the first capacitor plate to maintain a separation of at least the desired volume between the first capacitor plate and the second capacitor plate;

(B) coupling at least one region of the principal element to at least one region of the support surface; and

(C) removing the separator, whereby the first capacitor plate and the second capacitor plate remain separated by at least the desired volume in an unloaded state of the force sensor.

87. The method of claim 86, wherein the support surface comprises the second capacitor plate.

88. The method of claim 86, wherein the support surface is part of an interconnect system to transmit a signal developed in response to the change in capacitance between the first capacitor plate and the second capacitor plate.

89. The method of claim 86, wherein the principal element and the at least one region of the support surface are substantially parallel.

90. The method of claim 86, wherein the at least one region of the principal element and the at least one region of the support surface are electrically conductive, and wherein the step (B) comprises a step of coupling the at least one region of the principal element to at least one region of the support surface with an electrically conductive substrate.

91. The method of claim 86, wherein the separator comprises a shim.